

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT***COMPLIANCE and ENGINEERING***APPLICATION EVALUATION AND CALCULATIONS**

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Processed by: Hanh Le  
Checked by:  
Date: 1/21/2010

**PERMIT TO OPERATE**

COMPANY NAME: BP WEST COAST PRODUCTS LLC

MAILING ADDRESS: P.O. BOX 6210  
CARSON, CA 90749

EQUIPMENT ADDRESS: 1801 E. SEPULVEDA BLVD.  
CARSON, CA 90745

FACILITY PERMIT <i>SECTION D</i>			
PROCESS 16		SYSTEM 1	
PETROLEUM STORAGE TANK		FIXED ROOF TANKS	
<i>[EXISTING EQUIPMENT]</i>		Same System Conditions: none	
DESCRIPTION	DEVICE ID NO.	EMISSIONS And REQUIREMENTS	CONDITIONS
STORAGE TANK NO. 619, SULFUR, 50'-0" DIA. X 36'-0" H., FIXED ROOF, STEAM HEATED, 12,500 BARREL CAPACITY A/N <del>395613</del> 419002	D1137	SOX: 500 PPMV (5) [RULE 407, 4-2-1982]	<b>E336.3</b>
STORAGE TANK NO. 620, SULFUR, 50'-0" DIA. X 36'-0" H., FIXED ROOF, STEAM HEATED, 12,500 BARREL CAPACITY A/N <del>395614</del> 419003	D1138	SOX: 500 PPMV (5) [RULE 407, 4-2-1982]	<b>E336.3</b>

**BACKGROUND:**

These applications were originally submitted to change permit condition by revising condition no. E336.1 to allow the atmospheric venting of two molten sulfur tanks during periods of emergency and/or breakdown. The permit evaluation was processed and reviewed in 6/2004, but has not yet been approved for the revision. When BP's initial Title V permit became effective in September 1, 2009, BP was granted a variance (Variance Order Case No. 5357-57) to continue operating these two tanks as currently configures until March 2, 2010. The request to change permit condition E336.3 has been included in BP's October 9, 2009 supplement to the variance order in order to petition for Alternative Operating Condition (AOC).

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On 12/16/2009, BP requested to change the application type from change of condition to modification because the frequency of atmospheric venting of these tanks seems to be high for the so called emergency or malfunction releases.

A review of District records indicates that no Notices of Violation (NOV) or Notices to Comply (NC) were issued for the subject equipment over the past three years.

**EQUIPMENT DESCRIPTION**

Molten sulfur from the Claus units is pumped into the tanks with steam coils to maintain the temperature above the melting point of sulfur. During normal operation, the tank is continuously purged with steam which is vented to the sour gas system via an eductor. Each tank is equipped with a breather valve/vacuum breaker and split range control valve to ensure their integrity. The split range control valve is set at 2.5" WC, slightly below the breather valve relieving pressure (3" WC), and keeps the breather valve from having to operate often. The split range control valve is essential for this type of service since sulfur flowers can easily build up inside the breather valve causing it to plug or malfunction. It also helps prevent the breather valve from developing leaks if forced to open and reset.

**EMISSION CALCULATION**

Since the atmospheric vent gases will become part of normal operation, there will be slight increase in H<sub>2</sub>S emissions expected. Based on records of safety valve release during the last two years (December 2007 to present), average and maximum emissions from these tanks are estimated as follows:

Pollutant	Max Emissions (lbs/day)	Ave. Emissions (lbs/day)	Max Emissions (lbs/month)	Ave. Emissions (lbs/month)
H <sub>2</sub> S	0.02	0	0.66	0.07
VOC	0.01	0	0.17	0.02

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## **RULE REVIEW**

### **PART 1 SCAQMD REGULATIONS**

#### **Rule 212 – Standards for Approving Permits**

This rule requires public noticing for a modification or a new source located within 1000 feet of a school, if the project results in a Maximum Individual Cancer Risk (MICR) of  $1 \times 10^{-6}$  or greater during a lifetime (70 years), or if the project results in an emissions increase exceeding limits stated in Rule 212(g). The equipment is not within 1000 feet of a school, and has a trace amount of VOC emission in the vent gases releasing to the atmosphere. Therefore, public notice will not be required and compliance with Rule 212 is assured.

#### **Rule 401 & 402 - Visible Emissions and Nuisance**

Neither visible emissions nor nuisance odor problems are expected from the normal operation of these fixed roof storage tanks. An air dispersion modeling was conducted and the results show that the vent gases releases will not cause any nuisance problems. (Attached email dated 1/19/10).

#### **Rule 407 - Liquid and Gaseous Air Contaminants**

This rule limits emissions of carbon monoxide (CO) to 2000 ppm, measured on a dry basis and averaged over 15 minutes and emissions of sulfur, calculated as sulfur dioxide (SO<sub>2</sub>) and averaged over 15 minutes, to 500 ppm. There is an estimated max. H<sub>2</sub>S emission be recorded, 182 ppm, and only undetected SO<sub>2</sub> emission from this equipment. Compliance with this rule is expected.

#### **REG. XIII - New Source Review:**

This rule contains requirements for BACT, emissions offsets, and air quality modeling. Since the proposed change results in an insignificant emission increase, 0.01 lb/day VOC, BACT and emission offset are not required.

#### **Rule 1401 – New Source Review of Carcinogenic Air Contaminants**

This rule has requirements that the Maximum Individual Cancer Risk (MICR) associated with the project be under  $1 \times 10^{-6}$  if T-BACT is not used, or  $10 \times 10^{-6}$  if T-BACT is applied, that the hazard indices be less than 1.0 and the cancer burden be under 0.5. This proposed modification will cause a minimum increase in emission, 0.01 lb/day of VOC. Therefore, Rule 1401 requirements are not applicable.

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**Reg. XVII - Prevention of Significant Deterioration (PSD)**

ROG is a non-attainment pollutant. PSD does not apply.

**Reg. XX – Regional Clean Air Incentives Market (RECLAIM)**

BP Carson refinery is a cycle II RECLAIM facility. There are no emissions of NO<sub>x</sub> and SO<sub>x</sub> associated with this modification. Therefore, this regulation is not applicable to the proposed modification. The facility is expected to continue complying with the requirements of this regulation.

**Reg. XXX - Title V Operating Permits**

Rule 3002 requires that no person shall construct, modify, or operate equipment located at a Title V facility without first obtaining a Title V permit or permit revision that allows the construction, or modification. This facility is subject to and complies with Title V requirements. On September 1, 2009, BP's initial Title V permit became effective.

This project is considered to be a "De Minimis Significant Revision" which means any Title V revision where the cumulative emission increase of non-RECLAIM pollutants or hazardous pollutants from this permit revision during the term of the permit is not greater than any of the emission threshold levels listed in this rule section. The proposed Title V permit revision will be submitted to EPA for a 45-day review.

## **PART 2 STATE REGULATIONS**

**California Environmental Quality Act (CEQA)**

This proposed modification is not a significant project and is not subject to CEQA review.

## **PART 3 FEDERAL REGULATIONS**

40CFR Part 63 Subpart CC - National Emission Standards for Hazardous Air Pollutants from Petroleum Refineries

Group 1 storage vessel means a storage vessel at an existing source that has a design capacity greater than or equal to 177 cubic meters and stored-liquid maximum true vapor pressure greater than or equal to 10.4 kilopascal and annual average HAP liquid concentration greater than 4 wt percent total organic HAP. Those tanks not meeting the definition of the Group 1 storage vessel are by definition Group 2 storage vessels under this subpart. Group 1 storage vessels are subject to specific control requirements of this subpart.

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While Group 2 storage vessels are not subject to control requirements listed in this subpart, they are subject to the recordkeeping requirements.

This tank stores material with maximum true vapor pressure below 0.1 psia, or 0.69 kilopascals; hence, the average true vapor pressure will also be below 0.69 kilopascals. Since this tank does not meet the definition of the Group 1 storage vessel, it is considered Group 2 storage vessels. BP must maintain records showing the storage tanks meet the determination of a Group 2 storage vessel, vessel dimensions, and analysis of capacity. These records must be retained for 5 years. This tank is expected to comply with the recordkeeping requirements of this regulation.

#### **CONCLUSION/ RECOMMENDATION:**

The above equipment will operate in compliance with all applicable rules and regulations of the District. Permits to Operate are recommended for the above storage tanks subject to the following revised condition:

**E336.3** The operator shall vent the vent gases from this equipment as follows:

All sour gases under normal operating conditions shall be directed to a sour water system via an educator. **When the tank pressure exceeds 2.5-inch water column, the tank may release excess pressure into the atmosphere via a pressure-controlled valve.**

[RULE 1303(a)(1)- BACT, 5-10-1996]